

MILITARY SPECIFICATION

CUPS, GREASE

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers grease cups for use as containers to distribute lubricant to moving metal parts in order to reduce friction.

1.2 Classification. Grease cups shall be of the following types, classes, and styles designated by the applicable MS part number (see 6.2).

Type I - MS 35758 (Manual Feed).
Type II - MS 35759 (Automatic Feed).

Class 1 - Spring operated.

Style 1 - With tee handle.
Style 2 - Without tee handle.

Class 2 - Diaphragm operated.

2. APPLICABLE DOCUMENTS

2.1 Government Documents. Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

SPECIFICATIONS

Federal

PPP-B-585 - Boxes, Wood, Wirebound
PPP-B-591 - Boxes, Shipping, Fiberboard, Wood-Cleated
PPP-B-601 - Boxes, Wood, Cleated-Plywood
PPP-B-621 - Boxes, Wood, Nailed and Lock Corner
PPP-B-636 - Boxes, Shipping Fiberboard
PPP-B-640 - Boxes, Fiberboard, Corrugated, Triple-Wall

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document, should be addressed to: Commander, US Army Armament, Research and Development Center, ATTN: SMCAR-ESC-AS, Dover, New Jersey 07801-5001, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

SPECIFICATIONS

Military

- MIL-P-116 - Preservation, Methods of
- MIL-B-117 - Bags, Sleeves and Tubing - Interior Packaging
- MIL-B-121 - Barrier Material, Greaseproofed, Waterproofed, Flexible

STANDARDS

Military

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-147 - Palletized Unit Loads
- MS 35758 - Cups, Grease, Manual Feed
- MS 35759 - Cups, Grease, Automatic Feed

Federal

- FED-STD-H28/1 - Screw Thread Standards for Federal Services (Section 1)
Nomenclature, Definitions and Letter Symbols for Screw Threads
- FED-STD-H28/7 - Screw Thread Standards for Federal Services (Section 7) Pipe
Threads, General Purpose

(Copies of specifications, standards, handbooks, drawings and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

ASTM

- A366 - Steel, Carbon, Cold-Rolled, Sheet, Commercial Quality
- D3951 - Packaging, Commercial

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Material. The grease cups shall be made of materials shown on MS 35758 and MS 35759.

3.2 Design.

3.2.1 Manual feed (Type I). The design of manual feed grease cups shall conform to MS 35758. Cups shall be provided with a knurled edge.

3.2.1.1 Ratchet design.

3.2.1.1.1 Cup. The cup shall be provided with a sturdy cover-locking spring to prevent the cover from being shaken loose by vibration.

3.2.1.1.2 Base. The base shall be provided with two inside vertical grooves or ratchets, located 180° apart against which the locking spring of the cup shall bear in order to provide a proportioning guide for manually feeding grease and also to prevent change of position from vibration.

3.2.1.2 Non-Ratchet design. The non-ratchet design shown in MS 35758 is acceptable.

3.2.2 Automatic feed (Type II). The design of automatic feed grease cups shall conform to MS 35759.

3.2.2.1 Spring operated with tee handle (Class 1, Style 1).

3.2.2.1.1 Cup and cap. The cap shall be center drilled for passage of the threaded stem of the plunger. The shank of the cup shall be drilled for a slotted plug or similar device securely contained to regulate the flow of grease.

3.2.2.1.2 Plunger. The grease cup shall be provided with a plunger and threaded stem. The plunger shall be actuated by a conical, open-end spring of sufficient strength to maintain a flow of grease. The base of the plunger shall be provided with a non-metallic washer, snug fitting and securely placed to prevent leakage of grease.

3.2.2.1.3 Tee handle. Travel of the plunger shall be controlled by a tee handle, threaded to conform to the plunger stem threads. The tee handle shall be provided with a spring-loaded device to prevent change of position from vibrations.

3.2.2.2 Spring operated without tee handle (Class 1, Style 2).

3.2.2.2.1 Cylinder. The cylinder shall be vented at the top. The lower end shall be threaded for screwing it into the housing.

3.2.2.2.2 Housing. The housing shall be threaded at the top for screwing in the cylinder. A grease fitting shall be screwed into the side.

3.2.2.2.3 Protective valve. The grease cup shall be provided with a protective valve screwed into the bottom of a wiper disk seal. The seal and valve shall be actuated by a conical spring of predetermined pressure. When it is the manufacturer's practice to furnish springs of different strengths according to application, then he shall furnish one spring of each strength with every grease cup, with suitable instructions for their application included in the unit package.

3.2.2.3 Diaphragm operated (Class 2).

3.2.2.3.1 Cylinder. The cylinder shall be vented at the top. The lower end shall be threaded for screwing it into the housing.

3.2.2.3.2 Housing. The housing shall be threaded at the top for screwing in the cylinder. A grease fitting shall be screwed into the side.

3.2.2.3.3 Metering device. The grease cup shall be provided with a preformed, flexible non-metallic disk which, under pressure of the grease, assumes the shape of the cylinder. The return action of the disk shall force the grease out. The grease shall be metered either by a metering ball attached to the disk and sliding in the tapered bore of the housing or by an adjustable device extending through the side of the housing into the bore.

3.3 Threads. Thread dimensions shall conform to FED-STD-H28/1 - Screw Thread Standards for Federal Services (Section 1) Nomenclature, Definitions and Letter Symbols for Screw Threads and FED-STD-H28/7 - Screw Thread Standards for Federal Services (Section 7) Pipe Threads, General Purpose.

3.4 Wrench tabs. Grease cups shall be provided with wrench pads on the shanks or bases that will fit a standard-size open-end wrench.

3.5 Surface finishes. The exterior and interior surfaces shall be smooth-finished to normal manufacturing standards.

3.6 Component parts. The component parts of the cups shall be so constructed that the cups shall show no leakage (see 4.4.1).

3.7 Dimensions and tolerances. The dimensions and tolerances shall be in agreement with MS 35758 and MS 35759.

3.8 Protective coating. The cups shall be plated in accordance with instructions in MS 35758 and MS 35759.

3.9 Grease capacity. Capacity shall be as indicated in MS 35758 and MS 35759.

3.10 Workmanship. The grease cups shall be manufactured in accordance with this specification, pertinent standards and best commercial practice. The component parts of the grease cups shall have no pits, rust, loose scale, chips, scraps, splits, cracks, burrs or other defects that would affect proper operation.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Component and material inspection. The contractor is responsible for insuring that components and materials used are manufactured, examined and tested in accordance with referenced specifications and standards.

4.2 Sampling.

4.2.1 For nondestructive tests. Sampling for nondestructive tests shall be conducted in accordance with MIL-STD-105, Inspection Level II.

4.2.2 For destructive tests. Sampling for destructive tests shall be in accordance with MIL-STD-105, Inspection Level S4.

4.2.3 Lot. Unless otherwise specified, a lot shall consist of all cups of the same type offered for inspection at one time.

4.3 Inspection.

4.3.1 Examination of cups. Visual and dimensional examination of the grease cups shall be conducted in accordance with MIL-STD-105, Inspection Level II.

4.3.2 Inspection of preparation for delivery. The inspector shall determine that packaging, packing and marking conform to the requirements specified in Section 5.

4.3.3 Inspection of grease cups. Inspection of grease cups shall be conducted as follows:

<u>Categories</u>	<u>Defects</u>	<u>Method of Inspection</u>
Critical	None Defined AQL 2.5 Percent Defective	
Major		
101	Outside diameter exceeds maximum	Measure
102	Overall length exceeds maximum	Measure
103	Threads do not conform to FED-STD-H28/1 and FED-STD-H28/7	Measure
104	Spring cracked or broken	Visual
105	Disk cracked	Visual
106	Leakage	Visual
107	Metering components (plunger, valve, ball, tee handle, adjusting screw) broken or deformed	Visual
108	Workmanship defective (3.10)	Visual
	AQL 6.5 Percent Defective	
Minor		
201	Burrs	Visual
202	Foreign matter	Visual

4.4 Tests.

4.4.1 Functioning. Grease cups, selected per 4.2.1 shall be prepared as for service and filled with grease. The grease cups, including metering components, shall be checked for functioning, proper lubrication and leakage of lubricant. Failure of one or more tests shall be cause for rejection of the lot represented by the sample.

4.4.2 Destructive tests. Grease cups, selected as in 4.2.2 shall be analyzed to determine compliance with pertinent specifications. Plating shall be checked for conformance with applicable specifications. Failure of one or more tests shall be cause for rejection of the lot represented by the sample.

5. PACKAGING

5.1 Preservation and packaging.

5.1.1 Level A and B.

5.1.1.1 Unit packaging. Each cup shall be unit-packaged, Method IC-1 of MIL-P-116 and preserved with a preservative oil conforming to Type P-7 of MIL-P-116. The cups shall be drained of excess oil, individually wrapped in greaseproof barrier material conforming to Grade A of MIL-B-121 and placed in a packaging bag conforming to Type I, Class B, Style 2 of MIL-B-117. Closure of the bag shall be accomplished by heat sealing.

5.1.1.2 Intermediate packaging. Cups unit-packaged as specified in 5.1.1.1 shall be placed in a snug-fitting fiberboard box conforming to Class Weather-Resistant of PPP-B-636. Closure shall be accomplished in accordance with the container specifications.

5.1.2 Level C.

5.1.2.1 Unit packaging. Each cup shall be packaged Method III of MIL-P-116 in a packaging bag conforming to Type I, Class B, Style 2 of MIL-B-117. Closure of the bag shall be accomplished by heat sealing, stapling or taping.

5.1.2.2 Intermediate packaging. Not applicable.

5.1.3 Commercial.

5.1.3.1 Unit packaging. Each cup shall be unit packed in accordance with ASTM-D3951.

5.2 Packing.

5.2.1 Level A.

5.2.1.1 Intermediate packages, as specified in 5.1.1.2 shall be packed in a minimum size exterior box conforming to Style A, B, I or J of PPP-B-601; Class 2 of PPP-B-621 or Class 3 of PPP-B-585. Unless otherwise specified, the gross weight of the container shall not exceed 200 pounds. Closure of the container shall be in accordance with the applicable container specifications.

5.2.2 Level B.

5.2.2.1 Intermediate packages as specified in 5.1.1.2 shall be packed in a minimum size exterior container conforming to Class 2 of PPP-B-640, Class Weather-Resistant of PPP-B-636, Class 1 of PPP-B-621, Type Domestic of PPP-B-601, Class I of PPP-B-591 or Class 1 or 2 of PPP-B-585. Unless otherwise specified, the gross weight of the container shall not exceed 200 pounds or the limitations of the container specifications as applicable. Closure shall be accomplished in accordance with the requirements of the applicable container specification.

5.2.3 Level C.

5.2.3.1 Cups unit-packaged as specified in 5.1.2.1 shall be bulk packed in exterior containers conforming to Class Domestic of PPP-B-636, Class 1 of PPP-B-640, Class 1 or 2 of PPP-B-585, Type Domestic of PPP-B-601 or Class 1 or PPP-B-621. Gross weight shall not exceed the limitations of the container specification. Closure shall be in accordance with the requirements of the applicable container specification.

5.2.4 Cups unit packaged as specified in 5.1.3 shall be packed in accordance with ASTM-D3951.

5.2.5 Palletized Loads. When specified (see 6.2), palletized loads, commensurate with the level of packing specified in the contract or order, shall be palletized in accordance with MIL-STD-147. Palletized loads shall be uniform in size and quantities to the greatest extent possible. If the container is of a size which does not conform to any of the pallet patterns specified in MIL-STD-147, the pallet pattern used shall first be approved by the contracting officer.

5.3 Marking.

5.3.1 Levels A, B and C. In addition to any special or other identification marking required by the contract (see 6.2), each unit pack, intermediate or exterior container and utilized load shall be marked in accordance with MIL-STD-129.

5.3.2 Commercial. Commercial markings shall be in accordance with the requirements of ASTM-D-3951.

5.4 General.

5.4.1 Exterior containers. Exterior containers (see 5.2.1, 5.2.2, 5.2.3, and 5.2.4) shall be of minimum tare and cube consistent with the protection required and shall contain equal quantities of identical stock-numbered items to the greater extent practicable.

5.4.2 Packaging inspection. The inspection of these packaging requirements shall be in accordance with 4.3.2.

6. NOTES

6.1 Intended use. Manual feed grease cups supply an intermittent flow of grease for light-duty service. Automatic feed grease cups supply a continuous flow of grease for heavy duty applications.

6.2 Ordering data. Acquisition documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Type, class and style required (see 1.2, 3.1 and 3.2).
- (c) Section of applicable levels of preservation, packaging, packing, marking and commercial/industrial (5.1, 5.2 and 5.3).
- (d) When palletized loads are required (see 5.2.5).

6.3 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodian:

Army - AR

Air Force - 99

Preparing Activity:

Army - AR

Review Activities:

Army - AT

Air Force - 82

DLA - CS

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User Activities:

Army - GL

Navy - SH, AS

Marine Corps - MC

Agent:

DLA - CS